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WINTER FEEDING OF WILD BIRDS AROUND THE HOME

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Winter can be a very difficult time for wildlife. In fact, most of the birds that were hatched and mammals that were born during the previous spring will perish during their first winter; few will survive to see adulthood. This has been a natural part of the cycle of nature for thousands of years, and it will continue to be so. However, some of the hardships that wildlife face today stem from changes in habitat brought about by man's activities. Fields and river valleys have been converted to agricultural use, forests have been altered for maximum wood production, and cities and towns have replaced the trees and shrubs which formerly provided food and shelter for wildlife. These human-related changes in the environment have greatly increased the pressures on animals and diminished the ability of wildlife populations to withstand the hardships of the winter season. When this happens, a program of sound wildlife management, based on principles of biology and ecology, can minimize the harmful effects of man's alterations of the environment. A winter feeding program is one way to apply management principles to benefit wildlife.

For most of us who live in cities and towns, the wildlife we commonly see are small songbirds and an occasional squirrel or raccoon. While people believe that wildlife cannot exist in urban areas, a surprising number of birds and mammals live in the vicinity of our homes and businesses. Many of these are desirable species that manage to survive in our midst despite a decreased supply of food and shelter. A winter feeding program by urban residents can help to overcome wildlife problems brought about by urbanization.

All of us, whether we are aware of it or not, are habitat managers whose actions affect the wildlife around us. While our "backyard sanctuary" where we most frequently enjoy wildlife may not be of the same grand scale as a national wildlife sanctuary or other forested areas where deer and elk abound, the problems and solutions that we apply around our home are very similar to those of a professional wildlife manager. When we begin a winter feeding program in our backyard, we can begin to more fully understand the important functions that wildlife managers in the Department of Wildlife serve in our state. This publication will help you to successfully conduct a winter feeding program for birds around your home.

Seed-eating Birds.

Some birds, such as the finch, goldfinch, and some sparrows, have seeds as the main ingredient in their diet throughout the year and are called *granivores*. Many summer insect-eating birds, such as the chickadee, nuthatch, grosbeak, and siskin add significant amounts of seed to their diet during the winter months. It is this group of birds that backyard sanctuary managers most influence with their winter feeding programs.

Kinds of seeds– Some kinds of seeds are preferred by different species of birds. Generally speaking, seed-eating birds can be divided into two groups. In the first group are those that prefer sunflower seeds over smaller seeds. This group includes goldfinches, chickadees, grosbeaks, house and purple finches, and white-crowned sparrows. The second group includes those birds that prefer smaller seeds such as millet, milo, wheat, canary seed, or rice compared to the larger sunflower seeds. Birds in this second group include juncos, house sparrows, and song sparrows.

Perhaps taking a cue from the Coke vs. Pepsi commercials, some biologists have conducted a taste test of seeds by giving birds a variety from which to choose. They have found that seed preferences among birds are strikingly different, so it is difficult to provide one kind of seed that will satisfy the many birds that visit the backyard. However, some seeds are preferred by a greater number of birds, and these preferences can be ranked as shown in Table 1.

Seed mixtures?– You should keep in mind that different seeds have different values among birds, and close observation and experimentation will determine the most cost-effective ways to feed seed-eating birds. Managers should also question the wisdom of providing seed mixtures for birds, especially those mixtures that contain a variety of small seeds with a percentage of sunflower seeds commonly sold in stores. Birds will often scatter seeds that are not preferred while searching for the most desirable seeds in a seed mixture. Unless other birds then come to eat the seeds that have been scattered, the result is wasted seeds, higher feeding costs, and a mess on the ground that could attract mice and rats. Our knowledge of feeding ecology would suggest that a variety of seeds of single types be put in individual feeders in the backyard habitat, allowing different bird species to select their preferred types.

Grit– Birds don't have teeth with which to chew their food, but seeds are very hard structures that require a lot of mechanical grinding to prepare them for digestion. Even insects and soft fruits require some mechanical action to help break them down. Birds solve this problem by swallowing grit. These small particles of coarse sand, fine gravel, or other hard substances then act as miniature millstones in the bird's gizzard which churns and mashes the food. Some important minerals may also be extracted from the grit material by the bird's digestive system. Course sand, crushed oyster shells, and broken eggshells make excellent grit. These can be placed in a separate container near the feeder. Eggshells have the added benefit of providing calcium which is a much needed mineral, especially during the breeding season when calcium reserves are needed for egg-laying.

Table 1. Relative attractiveness of different seeds to birds. (Important note: these results are based on a study of birds in Maryland; some birds there are not found in western Washington, and many western Washington birds were not included in this study.)

Seed Type	Relative Attractiveness	Notes
White proso millet	high	Most preferred seed among birds that don't eat sunflower seeds, especially juncos, towhees, and sparrows. Excellent for feeders.
Oil-type sunflower	high	Best of the sunflower seeds. Chickadees, grosbeaks, and finches prefer sunflower seeds to white proso millet.
Red proso millet	high	Similar in value to white proso millet.
Peanut kernels	high	Despite large size, peanuts are eaten by many birds.
German millet	moderate	Not as good as white proso millet, and it is preferred by nuisance-causing house sparrows and brown-headed cowbirds.
Black-striped sunflower	moderate	Not as good as the smaller oil-type sunflower.
Canary seed	moderate	Often eaten by the same birds that eat white proso millet, but canary seed is more expensive.
Hulled sunflower pieces	moderate	Especially attractive to finches; useful if messy accumulations of husks is a problem.
Wheat	moderate	Black-striped sunflower and white proso millet are preferred by birds that eat wheat.
Milo	moderate-low	Not as attractive as white proso millet; a common ingredient in commercial seed mixtures.
Gray-striped sunflower	low	Not as attractive as other types of sunflower seeds.
Thistle	low	Highly valued by **goldfinches** and **siskins**; may be eaten by finches, song sparrows, and juncos. Expensive!
Buckwheat	low	Other seeds are much more attractive to most birds.
Rice	low	Other seeds are much more attractive to most birds.
Peanut hearts	low	Extremely attractive to starlings, so these should be avoided.
Hulled oats	low	Also called oat groats. Only starlings find them attractive.
Flax	low	Almost totally worthless.
Rape seed	low	Totally worthless.

Placement of feeders– Seeds can be placed in a variety of containers and placed in different parts of the backyard sanctuary. However, just as most birds have a preferred diet, they also have a favored height above ground for feeding. Towhees, juncos, and sparrows prefer to look for a meal on the ground, so scattering seeds amid grass and leaves will cater to their preferences. Avoid large concentrations of seeds in any one spot that will attract house sparrows, and provide only enough seed so that it is all eaten in one day to avoid problems with mice and rats. Grosbeaks and red-winged blackbirds prefer a large platform that is placed low to the ground. Many other birds will flock to feeders that are attached to a pole or suspended from a tree branch. Don't get carried away by height, however. A feeder that requires a ladder to reach will seldom get refills, especially during the cold and rainy months when outside chores become more troublesome.

Cats– Feeders should always be placed with cats in mind. Most birds like to have some type of vegetation cover nearby into which they can escape if predators, such as hawks or cats, are threatening. But dense shrubs provide hiding places for cats, and placing food too close to these hiding places lures birds to within easy reach of cats. Try to leave several feet between any food source and dense vegetation so that at least one pair of the many eyes in a group of feeding birds will have a good chance to spot a lurking cat and give warning to the rest of the flock.

Kinds of feeders– Feeders can be purchased or constructed. Generally speaking, feeders are of two different types: selective and nonselective. Selective feeders are smaller, hang freely from a tree branch, and have short perches. These allow small, agile birds to use the feeder but discourage the larger starlings, house sparrows, blackbirds, and crows. Nonselective feeders are larger, have larger perching areas, and are usually firmly attached to a pole, tree stump, or other immovable object. Nonselective feeders invite all of the birds in, regardless of their size and dexterity. Some of the more common types of feeders include the following:

1. **Bird table.**
   Any flat, elevated surface several square feet in size can serve as a bird table. Bird tables should have a rim around the edge to prevent the food from blowing away. A roof may add to the appearance of the table and provide protection from rain and snow, but it will also make the birds less visible and photographs more difficult. Anything can be served on a table like this: bread crumbs, seeds, suet, fruits, and table scraps. Because the table is so large, it is accessible to all and is considered a nonselective feeder. The extent of its use will depend on the numbers and types of birds that it attracts in your neighborhood.

2. **Window shelf.**
   Mount a bird table on the side of the house and under a window and you've got a window shelf feeder. Again, this is a nonselective feeder, but it will bring a lot of birds up close. Replenishing feeders that are near windows is much easier, especially in inclement weather.

3. **Box feeder, hopper feeder.**
   Box or hopper feeders are generally nonselective, especially the larger, pole-mounted varieties. The feeder may be six inches square or larger with a sloping roof, one or more glass or clear plastic sides, and a shelf or perch running along the edge where the seeds are exposed. The box feeder is usually hung from a tree branch or mounted on a rigid pole in the yard.

   Another interesting design is a box feeder that is mounted on a pulley strung between a yard tree and a window. This allows the feeder to be "reeled in" for refills. By moving it closer to the house each day, it can also be used to entice more wary birds to get closer to other feeders that may be mounted near the window. Still another variety of box feeder is mounted to a pole on a swivel that allows the feeder to be turned. Large weather vanes then position the opening of the feeder away from the direction of the wind, keeping the seed dry and the feathered visitors comfortable.

4. **Tube feeder.**
   Tube feeders have gained in popularity in recent years because they can be very selective in who is allowed access to the seeds. Tube feeders are usually made of clear plastic rolled into a cylinder and with two or more circular openings equipped with perches. The larger varieties hold enough seed to last for several days, and the clear plastic makes it easy to see when the feeder needs a refill. Tube feeders can accommodate only as many birds as there are perches and openings, so squabbling is kept to a minimum. This design insures that seeds are extracted one at a time, so there is less waste. That may be an important consideration when using relative expensive seeds like sunflower and niger. The tube feeders for niger have very small, slit-like openings for these small seeds.

   Tube feeders may be hung from a tree, from an overhanging eave near a window, or some may be mounted on poles in the yard. If house sparrows or house finches become unwanted users of your tube feeders, they can be made even more selective simply by shortening the length of the perch. A perch that is three-fourths to one-half inch long will allow the small, agile chickadee to land while the larger house finch flutters around in frustration. The backyard habitat manager should experiment with feeder designs that will take advantage of the physical abilities and limitations inherent in the species that are using the backyard sanctuary.

A number of different kinds of feeders are available in retail stores and bird supply catalogs. When selecting a feeder, keep in mind the kind of bird you want to attract, its dietary preferences, where it likes to feed, and its own abilities or limitations that comes with its body size and agility.

Insect-eating birds.

Many of western Washington's birds, including a majority of those present during the summer months, eat insects. Some of the smallest, most colorful, and most pleasant-sounding birds have insects as the main ingredient in their diet. Unfortunately, it is this group of birds that is most seriously affected by the process of urbanization. When it comes to providing food for these species so that they will visit the backyard sanctuary, it may not seem that there is much the habitat manager can do. After all, moth larvae and spider eggs are seldom found on the shelves of the local seed supplier.

But remember that the most important component of habitat for most wildlife species is vegetation, and insects are no exception. Insects find refuge in the crevices of bark, on twigs, amid leaves and needles, and in the ground litter under plants. They lay their eggs on plants and undergo larval metamorphosis on plants. By having a diversity and abundance of plants on the property, the backyard manager is, therefore, indirectly providing food for insect-eating birds.

Suet– During the winter months, many insectivores change their diet to include seeds and fruits to compensate for a dwindling supply of insects and insect eggs. One way for the backyard habitat manager to supplement the high-caloric insect diet for these birds during the colder months is to provide suet.

Strictly speaking, suet is the hard fat that surrounds the kidneys in cattle and sheep. Suet can be obtained from a grocery store or meat market, often free of charge. However, if suet is not available, ordinary beef fat collected from the trimmings of steaks or the drippings of hamburgers (avoid salt and seasonings) will suffice. Beef fat can be melted, poured into cupcake molds, and stored in the freezer until ready for use. Ordinary beef fat melts much more easily than suet and can be a serious problem for the birds if melting fat coats their feathers. This has the same effects as an oil spill: the fat destroys the insulating qualities of the feathers and the bird may lose heat too rapidly to survive, even if only a small portion of its feathers are affected. Therefore, beef fat should be provided only on days when temperatures will not be high enough to melt the fat or allow it to become rancid. It has also been suggested that remelting beef fat a few times on the stove before storing, allowing it to harden in between melts, will raise its melting temperature. This is worth some experimentation.

Suet feeders– Suet or fat can be offered to the birds in several ways. Suet chunks or beef fat in cupcake molds can be put in a mesh bag, such as an onion bag, or any other wire mesh container and suspended from a tree branch. Or suet can be softened by heating and then pressed into the crevices of a pine cone or into holes that have been drilled into a section of a small log which is then hung from a tree branch. Suspending the suet from a swinging container makes it more difficult for starlings to reach, and starlings have a good appetite for suet. Also, starlings don't seem to like to hang upside down, so placing suet in the center of a mesh container that can be reached only from the underside may discourage this unwanted pest. Suet can be given to the larger

woodpeckers in a mesh container that is fastened to the underside of a large branch or a leaning tree trunk.

Suet recipes– Here are some recipes to try:

1. A basic formula.
   Heat to boiling 1 part suet and 6 parts water.
   Add 2 parts commeal, 1/2 part flour, 1 part brown sugar.
   Cool, pour into cupcake molds, and allow to harden.
   Serve in appropriate feeder.

2. A standard mix.
   Twice melt 2 parts suet.
   Blend in 1 part yellow commeal and 1 part peanut butter.
   Allow to thicken, pour into molds, and allow to harden.
   The relative proportions of these ingredients may vary depending on your preferences.
   Serve in appropriate feeder.

3. Suet mix.
   Mix 1-1/2 parts ground wheat bread, 1 part hulled sunflower seeds, 1/2 part millet, 1/2 part dried and chopped fruits, 1-1/2 parts dried, ground meat.
   Melt 9 parts suet.
   Blend dry ingredients into suet as it cools and begins to thicken.
   Serve in appropriate feeder.

4. Hard peanut butter mix.
   Twice melt 2 parts suet, allowing it to harden between melts.
   Thoroughly blend in 1 part peanut butter.
   Blend in 2 parts yellow commeal and 2 parts fine cracked corn.
   Pour into cupcake molds or other form; cool until hardened.
   Serve in appropriate feeder.

5. Soft peanut butter mix.
   Melt 1 part suet.
   Stir and blend in 1 part peanut butter.
   In another bowl, blend 3 parts yellow commeal and 1/2 part whole wheat flour.
   When suet-peanut butter starts to thicken, blend in dry mix.
   Serve in appropriate feeder.

Fruit-eating birds.

Some birds, notably the Cedar Waxwing, eat the fruits of trees and shrubs and are known as *frugivores*. You can supply food for birds with this diet by including trees and shrubs that produce fruit.

Sweet, juicy fruits of plants like blackberry, huckleberry, cherry, dogwood, serviceberry, and elderberry are most nutritious and will be preferred by birds and mammals. They will also be gone by winter, whether by being eaten or becoming moldy. The drier, less sweet fruit of plants like juniper, sumac, mountain ash, holly, snowberry, cotoneaster, and pyracantha will not be preferred or consumed immediately, but they will be around for hungry animals during the winter and early spring months when other food supplies are in short supply. Your landscape should include both kinds of fruit-producing plants.

Feeding problems and how to solve them.

Backyard sanctuaries don't always live up to the peacefulness that is implied in their name, and sometimes intervention by the habitat manager is necessary to keep things running smoothly. This should not be surprising, however, because all of the living animals in the backyard have their own survival as a first priority, and the survival of one species may conflict with the survival of another. One goal of the backyard habitat manager should be to maintain an assemblage of animals that most closely approximates the workings of nature under natural conditions. Having a variety of wildlife in their proper proportions indicates a well-managed habitat.

Starlings.

Starlings may descend in a shrieking hoard on a well-provisioned feeding table or other food source. Their large size and aggressive behavior will drive away other birds, particularly flickers and woodpeckers. However, their size and behavior offer some ways to discourage these unwelcome visitors.

Starlings can be kept from seeds by using feeders with small perches and small openings. A tube feeder suspended with a string (or wire if squirrels are around) is especially effective. Starlings don't care for unhulled sunflower seeds or peanuts in the shell, and they reportedly are not fond of hard suet either. Avoid table scraps, bread and other baked products, peanut hearts, large amounts of birdseed, and other foods in large quantities, especially when placed on bird trays or on the ground.

Starlings are not adapted behaviorally to cling upside down. Suet placed in the center of a mesh feeder will be inaccessible to starlings, while chickadees, nuthatches, creepers, and woodpeckers will have no trouble moving about on the underside of the feeder.

Some manufacturers make a feeding tray that has a counterbalanced perch. When large birds land on the perch, their weight causes a partition to come between them and the seed supply. Smaller birds are not heavy enough to move the counterbalance. This might be worth a try if starlings are especially troublesome, and the Rube Goldbergs in Washington might find a challenge in making their own.

House sparrows.

Some of the steps taken to deal with starlings will have the added benefit of reducing the numbers of house sparrows as well. House sparrows like to feed on the ground or from a solid perch. Small feeders that swing and twirl whenever a bird lands on the perch will deter the sparrows. Avoid bread and bakery products, large concentrations of seeds, cracked corn, wheat, and oats. However, reducing the amount of seed that is scattered on the ground may adversely affect towhees, juncos, and white and golden-crowned sparrows. The backyard manager must find the right concentration to benefit the desirable species while deterring the undesirables, or learn to accept the presence of some house sparrows for the sake of the other species.

Pigeons.

More properly called rock doves, pigeons eat seeds on the ground. They are usually found only in neighborhoods where the architectural style of the houses includes overhanging eaves and covered ledges. Pigeons use these protected spaces for shelter and nesting. If pigeons are present in your neighborhood, avoid large quantities of seed placed on large, open trays or on the ground.

Squirrels.

Where do squirrels fit into the management plan of a backyard habitat manager? The antics of squirrels are a delight to watch, especially as they sit on their haunches nibbling furiously on a walnut that has been provided for them. And children love them as well. Small, furry creatures can usually find a soft spot in anyone's heart.

But this love may be lost when a squirrel invades a bird feeder and devours all of the expensive sunflower that was provided for songbirds. They can be deadly during the breeding season because they will attack and eat young nestlings. Homeowners who have had squirrels invade the attic can attest to their destructive powers, especially when electrical wires are laid bare of insulation from the gnawing habits of these rodents.

If you choose to discourage squirrels, or at least restrict their access to some of your feeders, you must once again take advantage of their large size (not to mention their inability to fly). Feeders mounted on a pole can be protected by placing a cone of sheetmetal or other smooth, rigid material on the pole. This squirrel guard can be purchased or made by the handyman, and it will effectively prevent squirrels from climbing up to the feeder. Note, however, that squirrels are world-class high jumpers, so the feeder and squirrel guard must be placed at least 5 feet off the ground. They should also be placed at least 8 feet from the nearest tree, building, or overhanging branch for the same reason.

Hanging feeders should be suspended by wire if squirrels are around, because they can quickly gnaw through rope or string to bring the food source down to ground level. Squirrels can drop or slide down a wire an amazing distance to land on a suspended feeder. To discourage this, a series of smooth metal discs, such as pie pans or metal lids, can be placed along the supporting wire and held in place by short sections of garden hose or plastic tubing. Old phonograph records may serve the same purpose. These discs will tip to dump off any hungry squirrel. Hanging feeders can also be suspended from a wire stretched between two trees, with plastic tubing placed around the wire on either side of the feeder. Squirrels may be agile, but not agile enough to hold onto a tube that is rotating freely around a thin wire.

Rats and mice.

These rodents may be attracted to seed that is left on the ground or on accessible bird trays. Rats and mice are most active at night, so provide only as much seed to ground-feeding and tray-feeding birds as they can consume during the day.

Hawks.

Large concentrations of birds around a feeder may attract a hawk or two, especially during the winter. During the lean months these birds of prey must sometimes venture into urban habitats in search of a meal, for they too feel the sting of winter and must cope with the demands of weather and temperature. An occasional foray of a sharp-shinned or Cooper's hawk into a backyard wildlife sanctuary should be treated as a welcome event rather than as a problem. One of the goals of managing a backyard wildlife sanctuary is greater ecological insight and increased environmental awareness. Predation is a natural part of a well-functioning ecosystem and an important component of all of Washington habitats, including the urban scene. Predators weed out the unfit and help to maintain the health of the prey population. Healthy songbirds can usually protect themselves from predators by taking to cover quickly. Trees, shrubs, and brush piles that have been provided by a habitat manager serve this function very well.

OTHER WAYS TO HELP OUR STATE'S WILDLIFE

The backyard habitat manager can help wildlife throughout our state in several ways, including other winter programs and year-round wildlife management activities:

1. Contribute to the winter feeding program.
   Tax-deductible donations will provide feed supplies for wildlife in critical areas throughout the state. Donations may be made to:

   Winter Feeding Program
   Wildlife Heritage Program
   600 Capitol Way N
   Olympia, WA 98504

   Contributions can also be given directly to the Department of Wildlife, and you may specify your donation to go to specific programs, such as winter feeding.

2. Purchase a conservation license.
   An $8.00 conservation license will provide funds that go directly to the Department of Wildlife to help fund its various wildlife programs. In addition, the conservation license will permit you to park in Department of Wildlife lands where you can enjoy wildlife-related activities. Conservation licenses can be purchased at sporting goods stores or wherever hunting and fishing licenses are sold.

3. Purchase a hunting or fishing license.
   Whether you hunt/fish or not, the Department of Wildlife relies primarily on the sale of hunting and fishing licenses to fund its multi-faceted programs. Hunting and fishing licenses may be purchased at many sporting goods stores or Department of Wildlife offices.

4. Purchase a personalized automobile license plate.
   The Nongame Program of the Department of Wildlife is funded through the sales of personalized car licenses. Not only do you have the opportunity to have a unique message on your car or truck, but you also support research and management of 536 species of wildlife, including many threatened and endangered species, that are not hunted in this state. Personalized plates during the first year cost $32.00 in addition to the regular yearly registration fee. The renewal fee is $20 in addition to the regular yearly registration fee. Applications for personalized plates may be obtained wherever car registrations are handled.

IMPORTANT PROBLEMS FACING OUR WILDLIFE RESOURCES AND THE DEPARTMENT OF WILDLIFE

Despite the enormous popularity of wildlife recreation - an appeal that cuts across cultural and age differences, education and work background - there are some very real threats to its future.

Habitat alteration and destruction is the cutting edge of this threat, coupled with the general public's misunderstanding or lack of knowledge about the problem. Fish and wildlife habitat losses resulting from human population expansion are of serious concern statewide, but particularly in western Washington.

Wetland areas and streamside habitat in western Washington are being converted to industrial and residential uses. Urban expansion and road construction remove land from the wildlife habitat base and open up critical habitat areas to increased human disturbance. Modern, high-yield timber management often reduces forest diversity, eliminates specialized habitats, and increases sediment in streams which, in turn, eliminates spawning and rearing habitat for fish. Even where wildlife is not adversely affected by loss of habitat, public access for wildlife recreation is being reduced by land development.

Dramatic habitat changes are also taking place in eastern Washington. Farming of previously undeveloped land results in significant wildlife habitat losses. Winter range for deer and elk is being converted to orchards on the east slope of the Cascades. Sagebrush and streambank areas that provide habitat for many birds are being removed throughout farm areas, and "cleaner" farming practices are erasing valuable habitat niches for wildlife. A serious threat to fish in eastern Washington is posed from the expansion of irrigated agriculture.

Within the Department of Wildlife, the most important long-range problem is stable funding. License and tag sales haven't kept pace with costs of operation. In Washington, about 1.4 million licenses, tags, and permits are sold each year, producing around $16 million. Historically, license sales have grown about 7 percent a year, but in recent years sales have dropped. This can be attributed to higher gasoline prices and the general economic slump, but with higher license fees taking effect over the past year, still fewer licenses are being sold.

Approximately 600 full-time employees are responsible for carrying out the vast responsibility of caring for our state's wildlife resources. This number is down substantially from the peak in 1981, and it is even below the 1977 level, despite the fact that obligations and functions of the Department have increased dramatically in that same time.

THE WASHINGTON DEPARTMENT OF WILDLIFE

The Wildlife Department's primary mission is to preserve, protect, and perpetuate the wildlife of the State of Washington, including game fish, game animals, furbearers, and all species of nongame (non-hunted) wildlife. It is also charged with maximizing opportunities for wildlife recreation. The primary wildlife programs of the Department include:

Fisheries Management. The fisheries management division is responsible for fishery research efforts and management techniques to enhance and protect 30 species of game fish. This is accomplished through fishing season regulations, monitoring changes in aquatic habitats, and producing approximately 30 million fish in 31 hatcheries located throughout the state.

Habitat Management. The protection of water and land habitats is one of the highest priorities of the Department of Wildlife. The habitat management division annually reviews more than 225 environmental documents and 350 Federal Energy Regulatory Commission actions. In addition, 6000 Hydraulic Project Approvals and 3500 Forest Practice Act Permits are issued each year. All of these activities are done to protect the welfare of all wildlife species.

Wildlife Enforcement. Wildlife agents provide one of the Department's closest contacts with the public. The enforcement division carries out a far-reaching community affairs program, enforces game laws, maintains the wildlife control program, and supervises the hunter education program.

Wildlife Management. There are 640 species of birds and mammals that call Washington home at some time of the year, making our state the richest state in the country in wildlife variety. Of these species, approximately 16% are species that are hunted, and 84% are nongame species. The wildlife management division sets regulations for hunting seasons, conducts research and management for threatened and endangered species, and manages more than 800,000 acres of prime wildlife habitat for recreational use.

Engineering and Land Management. The inventory, design, construction, and maintenance of 31 hatcheries, three game farms, 28 habitat management areas, 206 buildings, 600 public access areas, and 2255 miles of fencing are the responsibility of the engineering and land management division. The Department of Wildlife has installed 294 public fishing areas, 235 boat launching areas, and 207 parking areas for wildlife recreation.

Information and Education. Better communication with the public and increased educational efforts regarding our wildlife heritage are the main functions of the I&E division. As the pressures from an increasing population place more complex demands on our wildlife resources and our Department, the need for managing people becomes as important as managing wildlife. Wildlife education programs are conducted by the I&E staff, and approximately 40,000 students per year are taught sound environmental concepts by teachers trained by Project WILD facilitators.